1. (previously presented) A method of maintaining concentration in a low temperature electrolytic cell used for the production of aluminum from alumina dissolved in a molten salt electrolyte contained in a cell free of frozen crust, the method comprising:

(a) providing a molten salt electrolyte at a temperature less than 900°C;

(b) providing a plurality of anodes and cathodes disposed in said electrolyte;

(c) venting volatile material from said cell through a conduit;

(d) adding alumina on a continuous basis to said cell through said conduit;

(e) capturing said volatile material on said alumina; and

(f) returning said captured volatile material to said electrolyte with said alumina thereby maintaining the concentration in said molten salt electrolyte.

2. (original) The method in accordance with claim 1 wherein said electrolyte is comprised of one or more alkali metal fluorides.

3. (original) The method in accordance with claim 1 wherein said electrolyte is comprised of one or more alkali metal fluorides and aluminum fluoride.

4. (original) The method in accordance with claim 1 including maintaining said electrolyte in a temperature range of about 660° to 800°C.

5. (original) The method in accordance with claim 1 including passing an electric current through said cell at a current density in the range of 0.1 to 1.5 A/cm^2.

6. (original) The method in accordance with claim 1 wherein said anodes are comprised of a NiCuFe-containing alloy.

7. (original) The method in accordance with claim 1 wherein said cathodes are selected from the group consisting of titanium diboride, zirconium diboride, titanium carbide, zirconium carbide and molybdenum.

8. (original) The method in accordance with claim 1 including providing planer anodes and cathodes in a vertical orientation in said electrolyte and arranging said anodes and cathodes in alternating relationship.

9. (original) The method in accordance with claim 1 including adding said alumina at a rate sufficient to maintain alumina at least at saturation in the molten electrolyte.

10. (original) The method in accordance with claim 1 wherein said anode is a cermet anode.

11. (original) The method in accordance with claim 1 wherein said electrolyte is comprised of sodium fluoride and aluminum fluoride.

12. (original) The method in accordance with claim 1 wherein said electrolyte is comprised of one or more alkali metal fluorides and at least one metal fluoride.

13. (original) The method in accordance with claim 1 wherein said electrolyte is selected from NaF and AlF_3 eutectic, and KF and AlF_3 eutectic.

14. (original) The method in accordance with claim 1 wherein said electrolyte comprises 60 to 65 wt.% AlF_3, the remainder NaF.

15. (currently amended) A method of maintaining fluoride concentration in a low temperature electrolytic cell during electrolytic production of aluminum from alumina dissolved in a fluoride-based molten salt electrolyte contained in a cell substantially free of a frozen crust, the method comprising:

(a) providing a fluoride-based molten salt electrolyte at a temperature less than 900°C, the electrolyte comprised of one or more alkali metal fluorides and at least one metal fluoride;

(b) providing a plurality of anodes and cathodes in said molten electrolyte containing dissolved alumina;

(c) passing electrical current from said anodes through said electrolyte to said cathodes and depositing aluminum at said cathode;

(d) venting fluorides containing volatile material from said cell through a conduit;

(e) adding alumina to said cell through said conduit substantially continuously and contacting said fluoride containing volatile material with said alumina;

(f) capturing volatile material on said alumina; and

(g) returning said fluorides containing volatile material to said electrolyte with said alumina to maintain the fluoride concentration in said molten salt electrolyte.

16. (original) The method in accordance with claim 15 including maintaining said electrolyte in a temperature range of about 660° to 800°C.

17. (original) The method in accordance with claim 15 including passing an electric current through said cell at a current density in the range of 0.1 to 1.5 A/cm^2.

18. (original) The method in accordance with claim 15 wherein said anodes are comprised of a NiCuFe-containing alloy.

19. (original) The method in accordance with claim 15 wherein said cathodes are selected from the group consisting of titanium diboride, zirconium diboride, titanium carbide, zirconium carbide and molybdenum.

20. (original) The method in accordance with claim 15 including providing planer anodes and cathodes in a vertical orientation in said electrolyte and arranging said anodes and cathodes in alternating relationship.